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NCEL
Techdata Sheet

NAVAL CIVIL ENGINEERING LABORATORY
PORT HUENEME, CALIFORNIA 93043

SEAWATER BALLAST PUMP

The Naval Civil Engineering Laboratory has adapted its seawater hydraulic balanced vane motor, developed for powering diver tools, into a ballast pump for submersible vehicles. Figure 1 shows the ballast pump with a stacked etched disk inlet filter installed. This type of filter offers minimal inlet restriction and it has the advantage of being reusable.

The NCEL pump has a theoretical displacement of 0.189 in.^{3} per revolution. It delivers 0.46 gpm at a maximum pressure of 600 psi when operated at 1,800 rpm. The pump performance curves are provided in Figure 2. The complete list of pump performance specifications is provided in Table 1. The components of the pump are expected to have a service life expectancy of 250 hours based on the earlier motor development work.

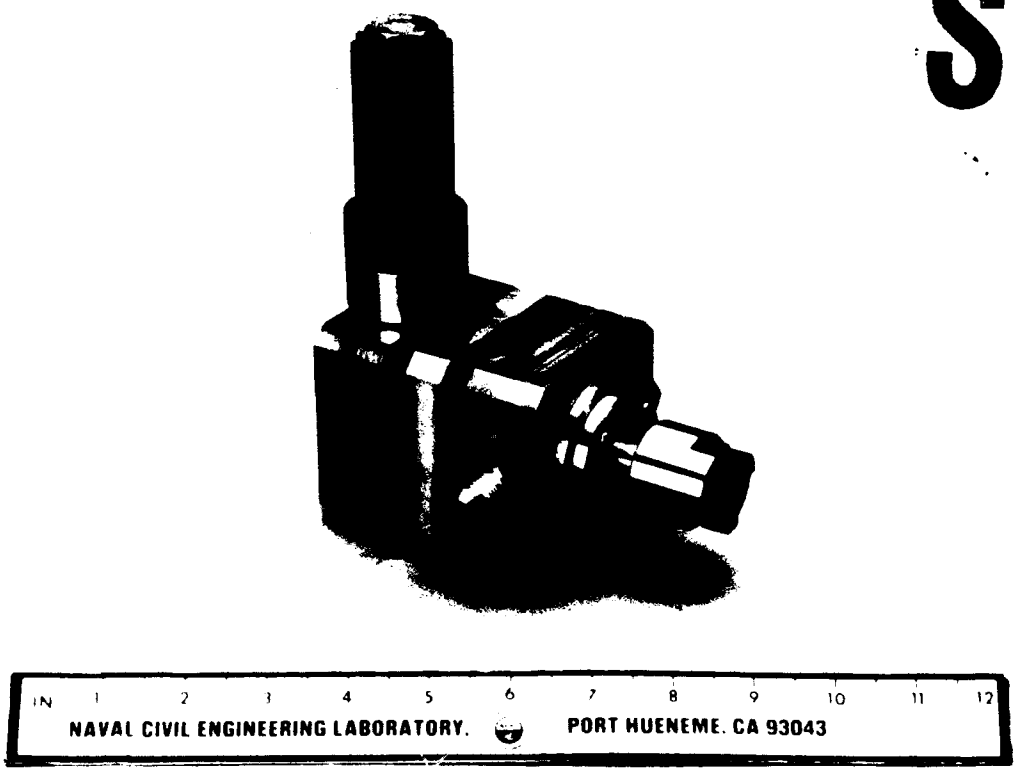

Figure 1. NCEL ballast pump.

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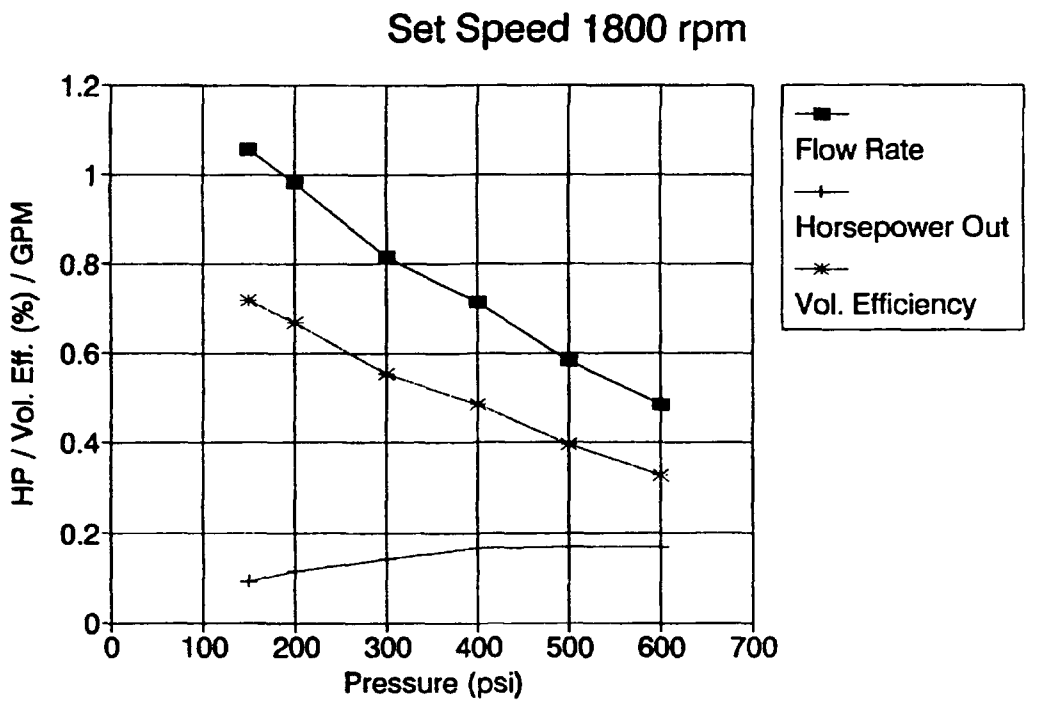

Figure 2. Ballast pump performance curves.

Table 1. Ballast Pump Specifications

Filtration	50 microns
Input Speed	1,800 rpm
Input Power	1 hp
Output Flow Rate at Maximum Pressure	0.46 gpm at 600 psi
Maximum Operating Temperature	90°F
In-Air Weight	6 lb
Envelope Dimensions	3 x 3 x 5.5 in. (w/o filter)

NCEL CONTACTS

John Kunsemiller, Code L45, Construction Systems Division
DSN 551-1007, Comm (805) 982-1007
or
Jerry Dummer, L03C, Facilities Engineering Support Office
DSN 551-1599 Comm (805) 982-1599
or
Answering Machine
DSN 551-4070, Comm (805) 982-4070